

Reclamation Plan Modification for the Patrie Pit

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INTRODUCTION

The purpose of this document is to give supporting information for the request to modify our existing reclamation plan at the reclaimed gravel pit known as the “Patrie Pit” in Section 15 in the Town of Goetz to change the final end land use from Wildlife Pond to Grassed Hay Pasture. The information in this document follows the Chippewa County Reclamation ordinance code. No other changes are proposed as part of this reclamation plan.

The Patrie Pit was reclaimed in 2013. The pit was reclaimed to a farmfield and planted with corn in 2014. Because of operational constraints, the pit was closed and reclaimed before mining could occur in the groundwater as planned and the final end land use creating a wildlife pond was no longer feasible. The purpose of the plan is to revise the final end land use.

(1) Initial Site Plan

(a) Initial Site Maps, to Include:

- 1. Location map to indicate general location of the project in the county or township;**
Please refer to **Figure 1, Plat Map** for the location of the Patrie Pit.
- 2. Topographic map of affected lands;**
Please refer to **Initial Site Map**.
- 3. Property boundaries showing the land under consideration and neighboring parcels located within 660 feet of the project site;**
Please refer to **Initial Site Map**.

4. **Roads located on or within 660 feet of the project site, with road names indicated;**
Please refer to **Initial Site Map**
5. **Road right-of-way lines;**
Please refer to **Initial Site Map.**
6. **Locations of all structures within 660 feet of the site and the use of each structure;**
Please refer to **Initial Site Map.**
7. **Location and names of all intermittent and perennial streams and lakes as indicated on USGS 7.5 min topographic maps;**
Please refer to **Initial Site Map.**
8. **Areas which convey concentrated flows to or from the site;**
Please refer to **Initial Site Map.**
9. **Locations of all wetlands within 660 feet of the site;**
Please refer to **Initial Site Map.**
10. **Boundaries of previous excavations on the site;**
Please refer to **Initial Site Map.** The Patrie Pit has been reclaimed.
11. **Wells within 660 feet of the site;**
Please refer to **Initial Site Map.**
12. **Groundwater elevation at the site and source of the information (boring, county groundwater map, well data, etc);**
Exploratory borings conducted at the site in 2000 before mining was conducted indicated groundwater at approximately 7 feet below the surface at an elevation of approximately 973'. Two additional auger holes were placed in the Patrie Pit floor in 2010 and it was determined the water encountered in 2003 was in fact perched groundwater and the actual groundwater elevation was at approximately 23 feet below the pit floor at an elevation of approximately 957'.

(b) Supporting Information for Initial Site Description:

1. Owner & Applicant Information

The Patrie Pit is owned by Ronald & Lydia Patrie; 10199 County Road K; Cadott, WI 54727.

The mine operator is Milestone Materials, a Division of Mathy Construction; 920 10th Avenue; Onalaska, WI 54650.

2. Lease

The lease with Ron and Lydia has expired and was not renewed because the site was reclaimed. An Owner/Operator Acknowledgement of Reclamation Plan has been submitted and signed by Ron Patrie.

3. Legal Description

The legal description for the Patrie Pit is: The NW ¼ - SE ¼ and the NE ¼ of the SE ¼ of Section 15, T29N – R7W, Town of Goetz, Chippewa County, Wisconsin.

The parcel numbers are: #22907-1542-00000000 and #22907-1541-00000000.

4. Parties of Interest

List the names and addresses of parties of interest within 660 feet of the project site. Adjoining Landowners within 660 feet of the project site are as follows:

Haas Sons, Inc.
203 E. Birch St.
Thorp, WI 54771

Ron & Lydia Patrie
10199 CTH K
Cadott, WI 54727

Robert & Melissa Patrie
10614 230th Street
Cadott, WI 54727

Steven & Scott Blexrude Trust
W3523 Decora Road
Horicon, WI 53032

Darrel & Francis McBain
10683 230th Street
Cadott, WI 54727

Stuart Peterson
10041 230th Street
Cadott, WI 54727

5. Soils Information

Thicknesses of the A & B soil horizons and the method of determination.

The A Horizon (topsoil) is an average of 6 inches thick and the B Horizon (subsoil) is an average of 6 inches thick. Thicknesses were determined by soil borings. Please refer to **Figure 2** for the Soils Map and Descriptions. ⁽¹⁾

According to the USDA Soil Survey for Chippewa County, the average topsoil thickness at the site is 8 inches of sandy loam/loam/loamy sand and the average subsoil thickness is 8 to 14 inches of sandy loam/loam/sand.

The Patrie Pit was opened in 2003. A and B horizons were kept separate where possible and stored as berms around the perimeter of the pit. The A and B horizon berms are not labeled or identified on the map because they were placed back on the site during reclamation in 2013.

(2) Site Operations Plan

(a) Site Operations Maps

Please refer **Operations Site Map**.

(b) Description of Site Operations

1. Description or list of the type of materials to be extracted;

Sand and gravel

2. Description or list of the type of extraction and processing activities to be conducted at the site;

The excavation operation began in 2003 with the removal of the soil from the top of the sand and gravel deposit using bulldozers, backhoe and haul trucks or scrapers. All of the topsoil was stored on site in berms around the perimeter and has since been replaced.

Sand and gravel was excavated from above the water and hauled by end-loaders or trucks to the crushing and screening plant. At the crushing and screening plant the sand and gravel was crushed and sized into various aggregate products and stockpiled by conveyors. The crushing and screening plant typically included several crushing units, screening units and conveyors. The crushing and screening plants were portable and were easily moved within the excavation and in and out of the site as needed to replenish the aggregate product stockpiles.

The processing area is shown on the Operations Map, however, the location of the equipment and stockpiles were temporary and moved throughout the site during

processing. The location shown is only to give an idea of what an operations scenario looked like.

No high capacity wells were installed or utilized for this operation. Mining did not occur below the water table at the Patrie Pit do to the clay layer encountered that caused the perched water table.

End-loaders were used to load the aggregate products into trucks from the stockpiles. The trucks are then weighed on a scale before leaving the site.

Occasionally, as recycle products became available, recycled concrete and asphalt were hauled to the Patrie Pit for temporary storage and processing into aggregate products. None of the recycle materials were buried on site and all of the recycle materials have been removed from the site. The Patrie Pit is registered in accordance with Section 30-77 of the Chippewa County Non-Metallic Mining Reclamation Ordinance but can be removed from the list at any time, as no recycled products will be stored at the site since it is reclaimed.

All wetlands were identified and avoided during mining and reclamation. Wetland areas are shown on Initial Site Map.

Hours of operation for the Patrie Pit were: 6:00 am to 9:00 pm, Monday through Friday; and 7:00 am to 3:00 pm on Saturday. Maintenance was conducted outside of these hours.

Equipment involved in the sand and gravel operation is listed below.

Topsoil & Overburden Removal:	1 backhoe
	1 bulldozer
	2-3 scrapers
	1-3 haul trucks
Processing Operations:	1-2 crushing and screening plants
	1 portable power generator
	1-2 front end-loaders
	1-4 conveyors/stackers
Other:	Portable toilet
	Portable scale & scalehouse

Access to the site is through the existing Patrie Pit driveway at address 10294 230th Street.

In addition to truck traffic hauling products and equipment needed for the mine reclamation, traffic for other mine activities (installation of BMP's, company personnel, reclamation activities) will utilize the driveway.

3. Estimated volume of materials to be extracted during the operation of each cell, during the permit period, and during the full life of the operation;

The estimated volume of materials that were extracted by cell:
Phase 1 – approximately 180,000 cy

Soils have already been stripped & stockpiled & replaced
TOTAL OPERATION: Approximately 180,000 cy

NOTE: Phase 1 was the only cell stripped, stockpiled and mined at the Patrie Pit.

4. Methods for site dewatering and effluent discharge. Discharges may require a Wisconsin Pollution Discharge Elimination Permit;

There was no dewatering conducted at the site. The Wisconsin Department of Natural Resources Storm Water Program regulates the sand and gravel excavation operation. Milestone Materials has coverage under the General Permit for Nonmetallic Mining Operations. With the exception of limited lengths of access road, all storm water and spring snowmelt water from the operation is contained with no runoff leaving the area. The Facility Identification Number for the site is 24857.

In accordance with our Wisconsin DNR permit, the site will be internally drained. The site has been internally drained since it was opened in 2003 and reclaimed in 2013 and has never had an issue with erosion or stormwater leaving the site. The stormwater permit will remain in effect for the Patrie Pit until Chippewa County approves the reclamation.

5. Stormwater permits required by other agencies;

The Wisconsin DNR requires a stormwater permit through NR 216. The existing Patrie Pit permit Facility Identification Number is 24857.

6. Erosion control permits required by other agencies;

The Wisconsin DNR requires a stormwater permit through NR 216.

Please see **Figure 3** for typical erosion control BMP's used at the site. The typical drawings were taken from the Wisconsin Department of Natural Resources Stormwater Construction Technical Standards. ⁽²⁾

- 7. Description of reclamation activities to be conducted during mining operations. This includes but is not limited to a description of topsoil stripping, stabilization and conservation methods to be used during operations. Reclamation activities are to be conducted on an ongoing and progressive basis;**

Topsoil and subsoil removed from the pit area was saved and stored as vegetated berms around the perimeter of the site. The soil stayed in the berms until needed for reclamation. All berms were shaped to a 3:1 slope and seeded with DOT Seed Mix 20 and mulched. Silt fence was installed at the toe of slopes until the berms were vegetated.

Excavation was only conducted in a portion of Phase 1 until it was determined that the clay layer under the perched water table was making it too difficult to make the products we needed to service the area.

The approximate thickness of the subsoil spread at the site is 6". The approximate depth of the topsoil to be spread is 6".

- 8. The sequence and progression through and between planned cells;**

Excavation of the sand and gravel began in Phase 1 and continued east. The stockpile area, scale, scale house, screening & crushing plant were located in Phase 1. The processing area and equipment will move around the site as mining progresses through the site.

- 9. A timetable for the commencement and cessation of nonmetallic mining operations. The timetable shall document the sequence of excavation and reclamation during operation of each cell, during the permit period, and during the projected life of the site;**

Nonmetallic mining has ceased at the Patrie Pit and the site was reclaimed in 2013. The former haul road to the site was removed excepting the driveway and approximately 150' of the road which will be used as a field road.

A reclamation bond is currently on file at Chippewa County LCFM for \$80,000. The site was seeded in spring of 2015 to a pasture mix consisting of clover, timothy and alfalfa.

(3) Final Site Plan

(a) Site Reclamation Maps

Please refer to **Final Site Map**.

(b) Description of Final Reclamation:

1. Description of plans for disposition of surface structures, roads, and related facilities after cessation of mining;

All portable facilities operating on the site were removed upon completion of mining prior to commencement of reclamation. The haul road to the pit was removed with the exception of 150' at the entrance. The road was reclaimed by removing the gravel base course that was on the road. Compacted areas were ripped and tilled prior to placement of overburden and topsoil.

2. Description of topsoil reapplication;

Topsoil was reapplied in accordance with Wisconsin Construction Specification 26, #4, from Section IV, Technical Guide, of the USDA-NRCS (**Figure 4**).⁽³⁾

The Technical Guide states that surfaces that will have topsoil applied shall be cleared of trees, stumps, roots, brush, rubbish and stones that are larger than 6 inches in diameter. Topsoil will not be placed until the subsurface is prepared. Spreading shall not be done when the ground is frozen or weather conditions are unsuitable.

Topsoil and subsoil was removed from the berms with excavators or loaders and transported in dump trucks to the area in the mine to be reclaimed. Topsoil and subsoil was separated the best to our ability. Trucks were routed to limit traffic over areas where subsoil had already been applied. The use of tracked equipment while spreading topsoil and subsoil will limit soil compaction.

All slopes were stabilized using best management practices including seeding, mulching, erosion control mat, hydro-seeding, etc. Please refer to **Figure 5** for the Wisconsin Erosion Control Product Acceptability List (PAL) Channel and Slope Erosion Control Matrix⁽⁴⁾.

The application of subsoil (approximately 6" thick) and the application of topsoil (approximately 6" thick) were applied in separate layers.

- 3. A description of how the reclamation plan addresses the long-term safety of the reclaimed mining site. The description shall include a discussion of site-specific safety measures to be implemented at the site and include measures that address public safety with regard to adjacent land uses.**

The site has been reclaimed to Grassed Hay Pasture. Long-term safety should not be a concern at this site as its final end land use is not going to cause any danger to the public.

- 4. Seeding plan which shall include a seeding schedule, seeding type and rates, mulching, netting, tree plantings, and other techniques needed to accomplish soil and slope stabilization;**

Seeding took place immediately following reclamation dirtwork activities.

Seeding was completed in April of 2015.

Methods of seeding were done as discussed in the 2015 Wisconsin DOT Standard Specification for Seeding (Section 630)(**Figure 7**), 630.3.3.1, Method A or 630.3.3.2, Method B. ⁽⁶⁾

All areas were seeded and mulched. Mulching was placed on the seed within 2 days after completing the seeding.

In the event invasive or noxious species are encountered, depending on the species and rate of establishment that it may not be possible to eradicate the infestation; however, the goal is to prevent establishment of invasive species and to establish a management plan to maintain and control them to target levels. NRCS Conservation Practice Standard Critical Area Planting Code 342 (**Figure 6**) will also be followed for noxious weed monitoring and control. ⁽⁵⁾

- 5. Description of the anticipated future use of the site;**

The final end land use will be Grassed Hay Pasture.

There will be no development on the reclaimed mine site.

Criteria for Measuring Reclamation Success

Criteria that will be used to determine reclamation success of the Grassed Hay Pasture will include species diversity, plant density, biomass, soil chemistry and fertility, and soil organic matter.

Percent cover should be 70 percent averaged over the site. The measurement of cover should be timed to correspond with the period of peak vegetative growth, typically in August.

Diversity and plant density will be measured by comparing to established successful areas that are similar in vegetation to the reclaimed site, either with test plots or other reclaimed sites.

Biomass will be measured by production of approximately 2 tons/acre/year.

Soil chemistry and fertility and soil organic matter will be measured with soil sampling.

No visible erosion shall also be used as a measurement criteria.

When Chippewa County gives notice that a Nutrient Management Plan will be required for the reclaimed area, Milestone will work with Chippewa County to develop a nutrient management plan (NRCS Standard 590).

REFERENCES

- (1) Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> . Accessed [3/27/2015].
- (2) Wisconsin Department of Natural Resources, Storm Water Construction Technical Standards. Available online at http://dnr.wi.gov/topic/stormwater/standards/const_standards.html. Accessed [11/19/2014].
- (3) Natural Resources Conservation Service, United States Department of Agriculture. Electronic Field Office Technical Guides. Available online at <http://efotg.sc.egov.usda.gov/references/public/WI/026.pdf>. Accessed [11/19/2014].
- (4) Wisconsin Department of Transportation, Erosion Control Product Acceptability List for Multi – Modal Applications. Available online at <http://www.dot.wisconsin.gov/business/engrserv/docs/pal.pdf>. Accessed [11/19/2014].
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- (6) Wisconsin Department of Transportation, 2015 Standard Specifications for Seeding. Available online at: <http://roadwaystandards.dot.wi.gov/standards/stndspec/ss-06-30.pdf#ss630>. Accessed [3/30/2015].
- (7) Wisconsin Department of Transportation, 2015 Standard Specifications for Mulching. Available online at <http://roadwaystandards.dot.wi.gov/standards/stndspec/ss-06-27.pdf#ss627>. Accessed [4/17/2015].